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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/116,589	07/16/1998	SHINGO NISHIKAWA	Q51098	2728

7590 01/17/2003

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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 01/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/116,589

Applicant(s)

NISHIKAWA ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28, 29 and 64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28, 29 and 64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

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DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on November 13, 2002, which has been entered as paper number 30.
- By this amendment, the applicant has amended claim 29 and has newly added claim 64.
- Claims 28-29 and 64 remain pending in this application.
- The rejection to claims 28 and 29 under 35 USC 112, first paragraph, set forth in the previous Office Action *still holds*.
- The rejection to claim 29 under 35 USC 112, second paragraph, set forth in the previous Office Action is *withdrawn* in response to applicant's amendment.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 28, 29 and 64 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The reasons for rejection are set forth in the previous Office Action dated May 14, 2002. Claim 64 inherits rejection from its based claim.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 28 and newly added claim 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hopwood in view of the patent issued to Minami.**

The reasons for rejection are set forth in the previous Office Action dated May 14, 2002.

The newly added claim 64 recites that the computer-generated hologram is fabricated by an electron beam. These references do not teach such explicitly however electron beam is one of the well known beam sources for recording hologram such modification is considered to be obvious matter of design choice since the specification fails to teach the criticality of having such beam source will solve any problem in the prior art.

5. **Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Molteni et al in view of the patent issued to Moss et al.**

The reasons for rejection are set forth in the previous Office Action dated May 14, 2002.

Response to Arguments

6. Applicant's arguments filed on November 13, 2002 have been fully considered but they are not persuasive. The newly added claim has been fully considered and it is rejected for the reasons stated above.

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7. In response to applicant's argument concerning the rejections of claims 28 and 29 under 35 USC 112, first paragraph, the examiner wishes to point out to the applicant that the claims as stand now do not make any connection between the making of the hologram with the collection of pixels. The specification and the claims only give a general method of copy a hologram and this general method will not be able to produce the collection pixels with the assignment of the plurality of holograms. This is not self-explanatory.

8. In response to applicant's arguments which state that for a *thin* hologram the "fringes are formed two-dimensionally as changes of surface irregularity" and the for the *volume* hologram the "fringes are recorded three-dimensionally in the hologram", the examiner respectfully disagrees. Firstly, for a thin hologram if the fringes are changes of "surfaces irregularity" then it is impossible for these fringes to be two-dimensionally recorded, since the surface itself is a two-dimensional object any irregularity to it can only occur in the third dimension. Also the fringes for a hologram cannot be *irregular*. The statement therefore is wrong. The applicant is respectfully reminded that the interference fringes are always three-dimensional. The criterion for determining the hologram being thin or volume type is by calculating the factor $Q = 2\pi\lambda d/n\Lambda^2$ wherein λ is the wavelength, d is the *thickness* of the recording medium, n is the refractive index of the recording medium, and Λ is the average spacing between the fringes. If Q is less than one, then the hologram is a thin type if Q is greater than one then the hologram is a volume type. This criterion suggests *nothing* about the fringes being two-dimensional or three-dimensional but it just suggested how big or small the fringe spacing compared to the thickness of the recording medium. Furthermore, the factor suggests that the thin or volume type of hologram depends greatly about the material of the recording medium used. A photosensitive material, as recited by the cited references, is most likely to record volume type of hologram. Also volume type of hologram has better efficiency, which therefore has more advantage.

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9. In response to applicant's arguments which states that the Moss reference does not suggest the using of computer generated hologram would be an improvement to the cited Molteni reference, the examiner respectfully disagrees for the reasons stated below. The applicant is respectfully reminded that Moss reference is relied to demonstrate the *well-known fact* that a computer generated hologram is used in the art as a master hologram for copying or making hologram. Both computer generated hologram and the method of using the computer generated hologram as master hologram are *extremely* well-known in the art they are equivalent in the art as compared to hologram or master holograms made by other standard methods in the art.

10. The applicant is respectfully reminded that the two-step method for making hologram, namely using a master hologram to record the hologram, is standard practice in the art. The thin type and volume type of hologram and the computer-generated hologram are also standard in the art. The combination of these well-known elements and method will provide no novelty requirement for patenting.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

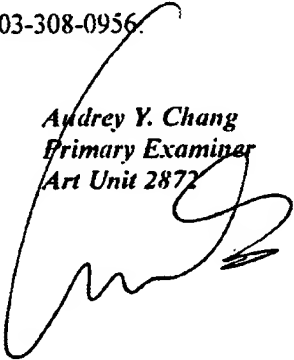
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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.
January 15, 2003